

ATTORNEY DOCKET NO.  
064977.0133

PATENT  
10/075,577

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### AMENDMENTS TO THE CLAIMS

For the convenience of the Examiner, all pending claims of the Application are reproduced below regardless of whether amended or not.

Please amend the claims as follows:

1. (Withdrawn) A distillation system for recovering acetic acid from water during terephthalic acid production comprising:  
a dehydration column having an overhead section;  
at least one input feed stream containing acetic acid and water;  
an entrainer; and  
a condenser to separate the acetic acid from water.
2. (Withdrawn) The distillation system according to claim 1 wherein the dehydration column is an azeotropic dehydration column.
3. (Withdrawn) The distillation system according to claim 1 wherein the dehydration column an output bottom stream and an output overhead stream.
4. (Withdrawn) The distillation system according to claim 3 wherein the output bottom stream has a higher acetic acid concentration than the at least one input feed stream.
5. (Withdrawn) The distillation system according to claim 3 wherein the output overhead stream has a lower dilute acetic acid concentration than the at least one input feed stream.
6. (Withdrawn) The distillation system according to claim 1 wherein the condenser condenses a vapor from the overhead of the dehydration column to generate a low pressure steam.
7. (Withdrawn) The distillation system according to claim 6 wherein the low pressure steam generated has a pressure of at least 0.6 kg/cm<sup>2</sup> abs.

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8. (Withdrawn) The distillation system according to claim 6 wherein the low pressure steam generated has a pressure from 0.7 kg/cm<sup>2</sup> abs to 2.0 kg/cm<sup>2</sup> abs.

9. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is N- butyl acetate.

10. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is I-butyl acetate.

11. (Withdrawn) The distillation system according to claim 1 wherein the entrainer is a mixture of N-butyl acetate and I-butyl acetate.

12. (Withdrawn) The distillation system according to claim 1 wherein the distillation column has an overhead pressure of at least 1.2 kg/cm<sup>2</sup> abs.

13. (Withdrawn) The distillation system according to claim 1 wherein the distillation column has an overhead pressure greater than 1.2 kg/cm<sup>2</sup> abs.

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14. (Currently amended) A distillation method for recovering acetic acid from water during the production of terephthalic acid, the method comprising:  
providing an input feed stream of water containing acetic acid;  
distilling the input feed stream in an azeotropic dehydration column having an overhead section into a vapor stream, the dehydration column operating at greater than ambient pressure;  
entraining the vapor;  
condensing the vapor stream to a liquid having an organic component and a water component, the organic component separable from the water component through phase separation; and ~~to separate acetic acid from water;~~ and  
outputting a bottom stream having a higher acetic acid concentration than the input feed stream and an output overhead stream having a more dilute acetic acid concentration than the input feed stream.
15. (Original) The distillation method according to claim 14 wherein the entraining step uses N-butyl acetate.
16. (Original) The distillation method according to claim 14 wherein the entraining step uses I-butyl acetate.
17. (Original) The distillation method according to claim 14 wherein the entraining step uses a mixture of N-butyl acetate and I-butyl acetate.
18. (Original) The distillation method according to claim 14 wherein the condensing step generates a low pressure steam.
19. (Original) The distillation method according to claim 18 wherein the low pressure steam is at least 0.6 kg/cm<sup>2</sup> abs.
20. (Original) The distillation method according to claim 18 wherein the low pressure steam is from 0.7 kg/cm<sup>2</sup> abs to 2.0 kg/cm<sup>2</sup> abs.

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21. (Original) The distillation method according to claim 14 wherein the distilling step has an overhead pressure of at least 1.2 kg/cm<sup>2</sup> abs.

22. (Original) The distillation method according to claim 14 wherein the distilling step has an overhead pressure of greater than 1.2 kg/cm<sup>2</sup> abs.

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